



Medical School Hotline

The Role of Research In Medical Education

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While the majority of most physicians' time is not devoted to conducting research, the practice of medicine is influenced by the results of medical research conducted by others. Thus, while it may not be of paramount importance for most physicians to be able to conduct medical research on their own, it is very important for practicing physicians to be able to incorporate the results of medical research published in the literature, into their current practice.

Medical Student: "Did you know that trauma is the second most common cause of death?"

Reply: That's only if the leading cause of death was lumped into "non-trauma." You see, I could make my favorite disease seem very important by manipulating statistics to my advantage. Even though the numbers are accurate, this would still be deceptive. To avoid being deceived, there must be a proper understanding of epidemiologic terms.

Pediatric Resident: "I read in a textbook that febrile seizures occur because of a rapid rise in temperature, rather than with a high temperature alone."

Reply: Just because you read it in a book, does not make it a fact. How would you design a study to prove that febrile seizures occur only when the temperature rises quickly? It would be impossible from a practical standpoint since it would require frequent temperature measurements (every 15 minutes) on many febrile children who are destined to have febrile seizures in the next few hours. Enrolling such patients for a study would be impossible. Some statements in a textbook are actually someone's opinion (rather than fact) which may or may not be provable with research.

Attending Physician: "Are calcium channel blockers efficacious and safe?"

Reply: In an article examining published studies addressing this question, a strong relationship between the recommendation of the authors and their financial affiliation with calcium channel blocker pharmaceutical companies was found (1), suggesting that the recommendation of the author may be influenced (unknowingly or knowingly) by financial considerations. Yet, a commentary from a journal editor concludes by affirming trust in the peer review process and the ability of readers to make their own judgments concerning the scientific validity of published material independent of potential financial conflicts (2). When can practicing physicians believe the recommendations of editorials and experts?

Medical Journal Editors: "How good is our editorial board at filtering the information being published in a journal?"

Reply: Although journal editorial reviewers and editorial board members are selected for their expertise in research publications and editorial abilities, a study investigating the editorial reviewers of a prominent medical journal found many deficiencies in their ability

to identify flaws in a test manuscript sent to them for publication consideration review (3). Thus, this study has demonstrated that the editorial review process is not perfect. Some journals are notably better at this than others.

So what is the role of research in medical education? Perhaps the question that medical educators (who design medical school curricula, residency training programs and continuing medical education programs for practicing physicians) must ask, can be rephrased as follows:

Medical Educators: "How much epidemiology, statistics, research methodology and scientific writing do practicing physicians need to know?"

Reply: Of course there is no definitive answer to this question. Physicians could benefit from more extensive formal training in many areas such as nutrition, sociology, law, laboratory methods, alternative medicine, public health, environmental engineering, computer science, telecommunications, business, etc. More formal training in epidemiology, statistics, research methodology and scientific writing could very well be justified. But a physician's time is limited. We cannot learn all things about all subjects. It cannot be universally agreed upon that one of these subject areas is substantially more beneficial for a physician than another subject area.

Advocate of medical research training would like to use this opportunity to push for more time in a medical education curriculum, but from a practical standpoint, medical research training must compete with all the other educational elements in a physician's training program in medical school, residency and continuing medical education.

Ideally, all physicians should be able to read a medical article and be able to perfectly critique it, identifying all its flaws and weaknesses, to place its conclusions and recommendations in their proper perspective. The amount of training time required to typically achieve this level of medical editorial expertise is simply not available in the educational curriculum for most physicians.

How do most practicing physicians read a medical article? It is likely that most medical articles are not read in sufficient depth to adequately critique the article; in other words, to assess the quality of its conclusions and recommendations. To save time, a physician may often read only the conclusion section of an article's abstract. This might sound sloppy, but in reality, our time is limited. Since most medical articles and textbooks are already reviewed by expert editors, this information has already been filtered for physicians. Thus, a physician's time may be better spent learning medicine rather than learning to critically interpret the results of medical literature that has already been scrutinized by an expert editor. Editors of a textbook or medical journal should be held primarily responsible for the critique and editing of an article, so that practitioners subscribing to the journal (selected for its area of medical interests) are exposed only to medical research which is pertinent, valid and placed in proper perspective.

This is not to minimize the role of medical students, residents and practicing physicians in medical research. Some will be more interested in research than others. Medical students, residents and practicing physicians can make substantial contributions to medical research. Those who want to contribute, should be encouraged to step forward. Our community is fortunate to have a medical school that has devoted some valuable curriculum space to critical appraisal and evidenced based medicine. We have a school of public health


with introductory courses and advanced degree programs in biostatistics and epidemiology, in addition to other university departments such as the colleges of engineering and business administration that have willingly provided their expertise in assisting with medical research. We have several community medical centers actively sponsoring and fostering medical research, providing training sessions in research methodology.

Rather than impose medical research upon us all, perhaps it would be best to offer such training and/or experiences only to those who have the desire to conduct research or to those who want to enhance their skills at critically evaluating the quality of medical research publications. The faculty of the school of medicine and community

research clinicians should be willing to provide research experience, didactic training sessions and collaborative assistance to medical students, residents and practicing physicians who are interested in any or all aspects of medical research and scientific writing to foster a sense of a research community spirit in the state.

References

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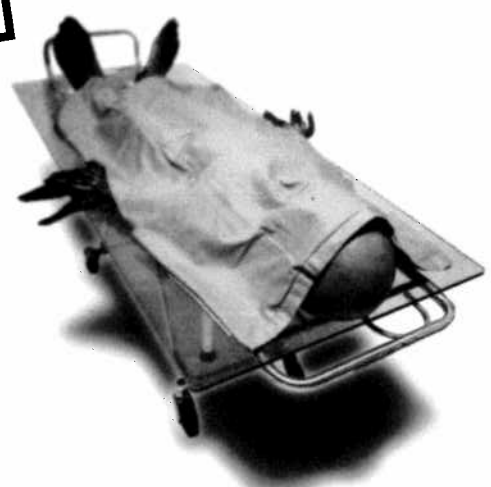
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